

## Section 2-6: Algebraic Proof

By the end of this lesson, you should be able to answer:

- How do you use Algebra to write two-column proofs?
- How do you use properties of equality to write geometric proofs?

Define the following:

1. Algebraic Proof
2. Two-column Proof
3. Formal Proof

Properties of Real Numbers	
Addition Property of Equality	
Subtraction Property of Equality	
Multiplication Property of Equality	
Division Property of Equality	
Reflexive Property of Equality	
Symmetric Property of Equality	
Transitive Property of Equality	
Substitution Property of Equality	
Distributive Property	

*Example 1:* Solve  $2(5 - 3a) - 4(a + 7) = 92$  . Write a justification for each step.

*Example 2:* If the distance  $d$  an object travels is given by  $d = 20t + 5$ , the time  $t$  that the object travels is given by  $t = \frac{d - 5}{20}$ . Write a two-column proof to verify this conjecture.

*Example 3:* If  $\angle A \cong \angle B$ ,  $m\angle B = 2m\angle C$ , and  $m\angle C = 45^\circ$ , then  $m\angle A = 90^\circ$ . Write a two-column proof to verify this conjecture.

Problem Set:

"THE GREATEST CHALLENGE TO ANY THINKER IS STATING THE PROBLEM IN A WAY THAT WILL ALLOW A SOLUTION." - BERTRAND RUSSELL